Oct. 21, 1952 H. NELSON 2,614,623

VENETIAN BLIND HEAD BAR ORGANIZATION

Filed Jan. 18, 1950 2 SHEETS—SHEET 1

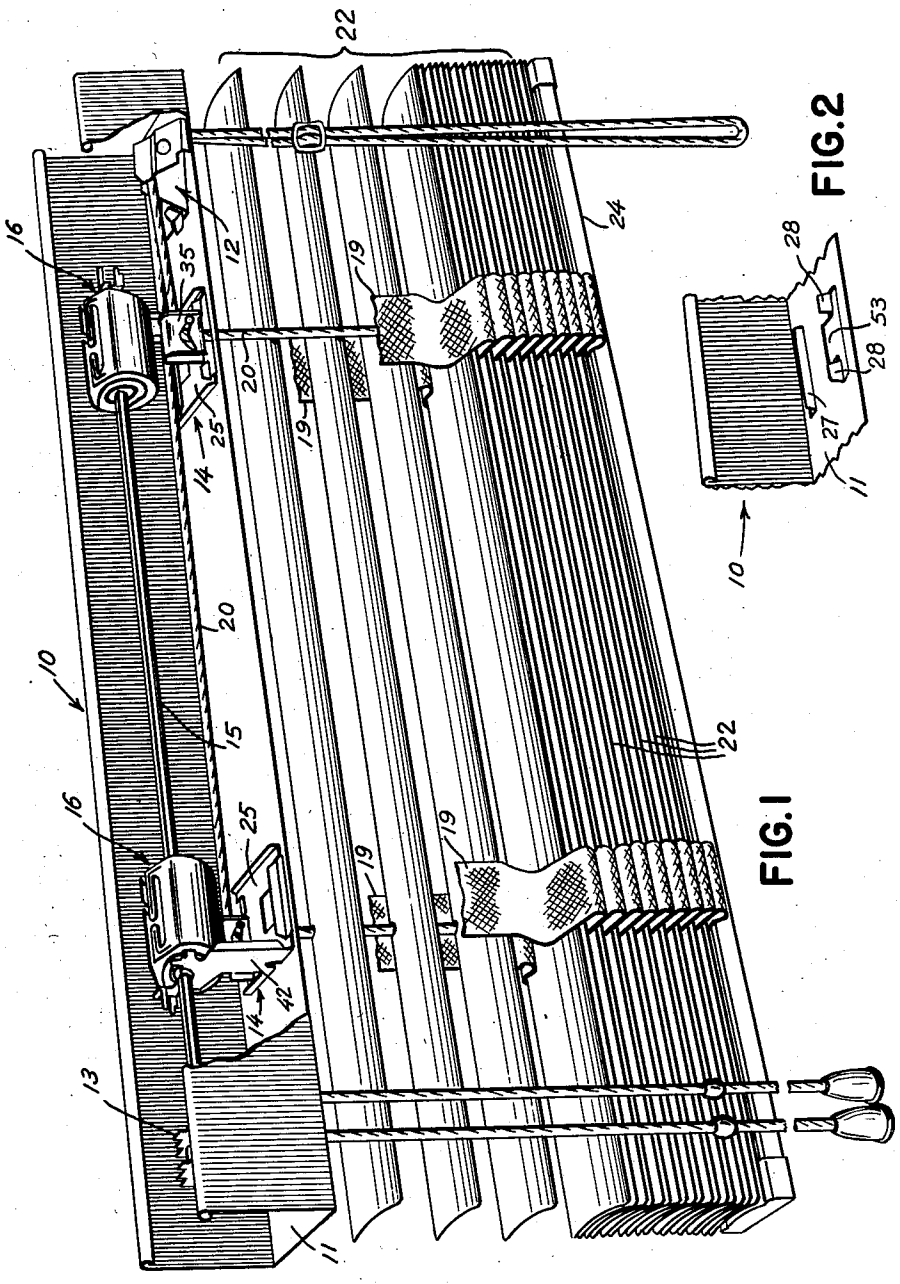


FIG. 1

FIG. 2

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VENETIAN BLIND HEAD BAR ORGANIZATION

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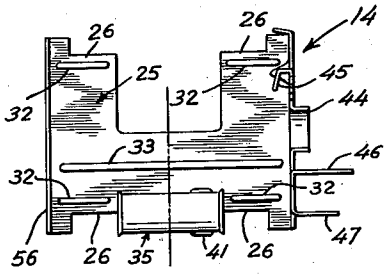


FIG.3

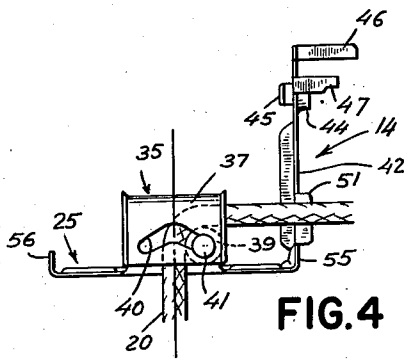


FIG.4

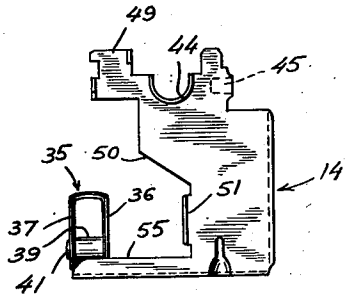


FIG.5

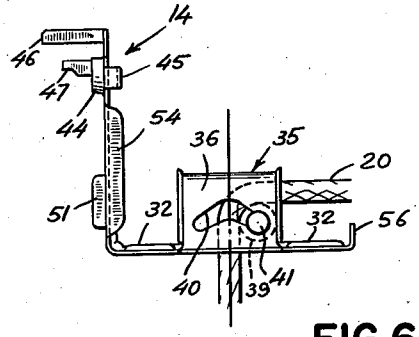


FIG.6

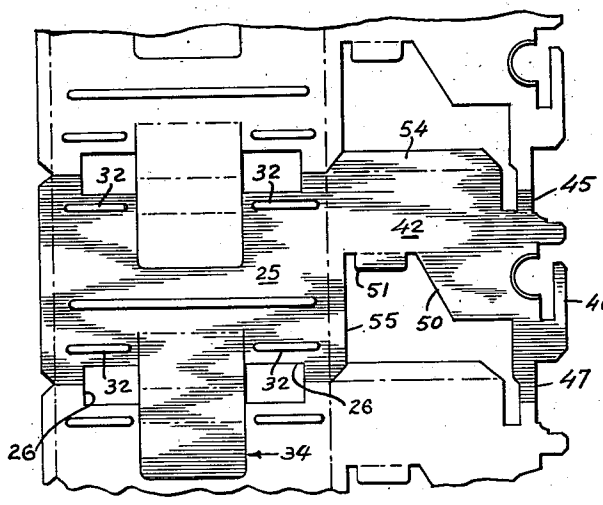


FIG.7

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VENETIAN BLIND HEAD BAR ORGANIZATION

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Application January 18, 1950, Serial No. 139,183

5 Claims. (Cl. 160—173)

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This invention relates to Venetian blinds, and more particularly to a tilt rod cradle or cord guide for blinds of the type having a so-called "enclosed head," in which the blind operating mechanism is contained within a more or less enclosed or box-like head bar.

In certain forms of enclosed heads, the head bar is formed of a sheet metal channel having openings formed in its bottom wall for passage of the ladder tape branches and the lift cords and tilt cords of the Venetian blind. The ladder tapes of the blind are suspended from tape rockers which are mounted at intervals along a tilt rod, running lengthwise of the head bar, one tape rocker being provided for each ladder tape of the blind.

Tilt rod cradles are provided to support the tilt rod adjacent each tape rocker. The tilt rod cradles for the ladder tapes which have a lift cord associated therewith are also provided with a cord-guide pulley to facilitate leading the lift cord along the head bar and to a cord lock fitting adjacent an end thereof. This general type of head bar assembly is more fully disclosed in my copending application S. N. 778,002, filed October 4, 1947.

In the form of removable slat blind here shown, the slats may be removed from the blind without first withdrawing the lift cords from the slats, the lift cords of the blind of the present invention being reeved through notches formed along the edges of the slats. In such a construction, it is desirable to have the cord-guide pulley located at the side of the cradle rather than located above the longitudinal center line of the slats as in the usual construction. One lift cord is positioned along the forward edge (toward the operator) of the slats and the other lift cord is positioned along the rear edge of the slats to prevent tilting of the bottom bar by the lift cords.

Among the objects of the present invention is to provide an improved tilt rod cradle for removable slat blinds of the general type here shown that provides ample clearance for free passage of the lift cords, that is reversible end for end so that rights and lefts are not required, and that is dependable and long-lived and manufactured of a single sheet metal stamping.

Another object is to generally improve head bar organizations for certain types of removable slat blinds, and tilt rod cradles therefor.

Further objects and objects relating to details and economies of construction, manufacture and use will more definitely appear from the detailed description to follow.

In the form shown of the present invention, the tilt rod cradle comprises a stamped sheet metal body having a base portion adapted to be mounted on the inside bottom wall of a channel-shaped head bar and an upstanding leg portion

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at one end for supporting the tilt rod. A portion projecting from one side of the cradle base is folded upward and back upon itself in spaced relation to form a pulley housing at the side of the base. The vertical sides of the housing are provided with registering slots for receiving the axle of a pulley supported within the housing, the pulley axle being shiftable in the slots to position the pulley adjacent either end of the housing. This construction permits the cradle to be turned end for end so as to permit the same cradle to be used in conjunction with either the left or right lift cord, or in an opposite hand blind in which the cord lock is located at the left end of the head bar.

My invention is clearly defined in the appended claims. In the claims, as well as in the description, parts are at times identified by specific names for clarity and convenience, but such nomenclature is to be understood as having the broadest meaning consistent with the context and with the concept of my invention as distinguished from the pertinent prior art. The best form in which I have contemplated applying my invention is illustrated in the accompanying drawings forming part of the specification, in which:

Fig. 1 is a perspective view of a Venetian blind incorporating the present invention, portions of the front wall of the head bar and of the ladder tapes being broken away to show details of construction.

Fig. 2 is a fragmentary perspective of the cradle-receiving portion of the head bar.

Fig. 3 is a top plan view of one of the tilt rod cradles.

Fig. 4 is a side elevation of the tilt rod cradle. A section of lift cord is shown reeved through the cradle, the cord and pulley being positioned for use at the right end of the head bar.

Fig. 5 is a right end view of the tilt rod cradle.

Fig. 6 is an elevation of the other side of the tilt rod cradle. A section of lift cord is shown reeved through the cradle and the cradle, pulley and cord are positioned for use at the left end of the head bar.

Fig. 7 is a development of the cradle body stamping, showing its relation to adjacent cradle body stampings during manufacture.

Referring now to Fig. 1, the removable slat blind therein shown includes a channel-shaped sheet metal head bar 10, on the bottom wall 11 of which a series of fittings are mounted to provide the operating mechanism of the blind. These fittings include a cord lock 12 at the right end of the head bar, a pair of tilt rod cradles 14, 14, one located adjacent each end of the head bar, and a tilter 13 at the left end of the head bar. A tilt rod 15 extends lengthwise of the head bar and is supported and rotated by the tilter 13

and supported by the tilt rod cradles 14, 14. A tape rocker 16 is mounted on the tilt rod 15 adjacent each tilt rod cradle 14, the tape rockers being adapted to receive the upper ends of the ladder tapes 19, 19. This organization is generally similar to that shown in my copending application Ser. No. 778,002.

The lift cords 20, 20 are reeved in the blind with one lift cord (in this instance the right one) being located in front of each of the slats 22 of the blind and the other lift cord being reeved in rear of the slats of the blind. The lift cords lie between a vertical branch of the ladder tapes 19, 19 and the slats 22 and preferably the edges of the slats are slightly notched to partly receive the lift cords so as to prevent fortuitous displacement of the slats. In this type of blind, the slats are individually removable for cleaning without disconnecting the lower ends of the lift cords 20, 20 from the bottom bar 24.

The lift cords 20, 20 are brought upwardly through the bottom wall 11 of the head bar, one adjacent the front and one adjacent the rear wall of the head bar so that the lift cords will run straight from the head bar to the bottom bar.

Each tilt rod cradle 14 of the present invention comprises a single-piece sheet metal stamping having a generally flat base 25. The base 25 may be provided with a pair of shallow elongated notches 26, 26, one on each side thereof, for reception of tabs 27 and 28, 28 (to be described later), which are struck up from the bottom wall of the head bar and bent down against the cradle base. The shallow notches 26, 26 may be interrupted as indicated in Fig. 2 for convenience of stamping the body of the cradle and to provide clearance for the lift cord 20 reeved through the cradle.

Raised beads 32, extending parallel to the notches 26, 26, and located inwardly a short distance from the notches, serve to reinforce the base against bending and serve as surfaces against which the head bar tabs may be bent to hold the cradle in position. A longitudinal, upwardly-pressed corrugation 33 extending for the length of the base 25 between the notches 26, 26 further reinforces the base against bending.

A laterally-extending portion 34 of the cradle base, extending centrally from one side thereof, may be folded upwardly and then back upon itself in parallel-spaced relation to form a box-like pulley housing 35 having open ends and bottom, the space between the side walls 36 and 37 of the housing accommodating a pulley 39. The edges of the housing 35 are slightly flared to prevent fraying of the lift cord 20 reeved through the cradle. Preferably, the laterally-extending portion 34 of the base extends within the marginal limits of the base itself, interrupting one of the notches 26, as indicated in Figs. 3 and 7, the metal being severed in a continuation of the extending portion 34 to permit forming the housing 35 over one of the notches 26.

The side walls 36 and 37 of the pulley housing are provided with aligned or registering inverted V-shaped slots 40, these slots being centered on the transverse center line of the base. Preferably, each of these slots is slightly wider at its mid-portion and tapers towards each end. The slots 40, 40 receive a rivet 41, this rivet serving as an axle for the pulley 39. The rivet 41 is not clinched tightly against the side walls of the housing 35 but is free to be shifted along the slots 40, 40, the rivet passing freely along the central portion of each slot but wedging in the end portions of the slots so as to prevent rotation of the rivet in the slots upon rotation of the pulley.

Each tilt rod cradle 14 is provided with a substantially vertical upstanding leg 42 at one end of the base 25, this leg having a tilt rod bearing 44 at its upper end and located on the longitudinal center line of the cradle. The bearing 44 may comprise an outwardly projecting flange to provide an extended area for receiving the tilt rod 15.

The upper part of the vertical leg 42 is provided with a rigid tab 45 opposite the bearing 44 which is bent inwardly and back upon itself in generally parallel spaced relation. This tab is provided to limit endwise movement of the associated tape rocker 16, as explained in my application S. N. 110,517, filed August 16, 1949.

The upper front portion of the leg 42 is provided with a pair of outwardly extending parallel tabs 46 and 47, the tab 46 being somewhat longer and located a little higher than the tilt rod bearing 44. The location and proportions of the tabs 46 and 47 are such that, after insertion of the tilt rod 15 in the cradles 14, 14, the portion 49 of the leg 42, including the tabs 46 and 47, may be bent outwardly through 90° thus locating the tab 46 just above the tilt rod to retain it in the bearing 44 and placing the tab 47 across the end of the tilt rod 15 to prevent its endwise movement. The tilt rod terminates just to the right of the right hand cradle 14.

Since the tilt rod 15 is commonly received within the tilter 13, it is usually unnecessary to restrain the tilt rod 15 against movement upwardly from the tilt rod bearing 44 except at the cradle 14 further removed from the tilter, and it is only at such cradle that the tilt rod end stop tab 47 can function. However, the tab 46 of the other cradle 15 may be bent independently of the tab 47 to a position overlying the tilt rod bearing, if desired.

A large, forwardly opening notch 50 of the form indicated in Figs. 5 and 7 is formed in the leg 42 on the same side of the cradle as the pulley housing 35. The notch 50 provides ample clearance for passage lift cords 20, 20 so as to permit free running of the cords when raising and lowering the blind. Reeving of the lift cords 20, 20 is also facilitated by the notch 50, since the cords need not be passed through apertures in the upstanding legs of the tilt rod cradles as in some constructions. An outwardly-extending guide tab 51 may be provided at the rear of the notch 50 to provide a smooth bearing opposite the lift cord so as to prevent possible fraying of the cords in the event they should at times run against the rear wall of the notch. This construction is shown in my aforementioned copending application S. N. 110,517.

The upwardly-pressed bead or corrugation 33 of the cradle base may be carried around the bend and into the leg 42 to reinforce the injunction against bending, while the portion of the leg 42 reduced in width by the notch 50 may be reinforced by an inwardly-directed flange 54 extending along its rear edge.

The lower edge of the notch 50 is so formed so as to leave a short flange 55 extending upwardly from the base 25, this flange being in the plane of the leg 42. This flange is not high enough to interfere with passage of the lift cords and serves to stiffen the base 25 against bending. A corresponding flange 56, which may be slightly higher and still not interfere with the lift cords, is located at the opposite end of the base 25.

These flanges aid in reinforcing the base of the cradle.

The cradles 14, 14, the cord lock 12 and the tilter 13 are held in place along the bottom wall of the head bar 10 by tabs which are struck up from the bottom wall of the head bar, the tabs being bent down against portions of their bases. This general method of securing the operating fittings to the head bar is more fully disclosed in my copending patent application S. N. 778,002. A portion 53 between the tabs 28, 28 may be cut away to provide clearance under the pulley housing for passage of the lift cord.

The cradle 14 adjacent the left end of the head bar 10 is turned end for end or reversed to place the pulley housing adjacent the rear wall of the head bar, as indicated in Fig. 1. The pulleys 39 of both cradles are moved to the right (towards the cord lock 12) before the lift cords 20, 20 are reeved so that the cords will lead down opposite the transverse center line of the cradles, the pulley axle 41 resting at the right ends of the slats 40, 40 in each instance.

To reeve the lift cord into a complete blind assembly, the right hand branch or lift cord 20 is passed through the pulley assembly of the right hand cradle (adjacent the front wall of the head bar) downwardly between the vertical branches of the right hand ladder tape and anchored to the bottom bar. The left hand branch or lift cord 20 is led rearwardly of the right hand branch past the open notch of the right hand cradle, reeved through the pulley housing of the left hand cradle (adjacent the rear wall of the head bar), passed downwardly between the vertical branches of the left hand ladder tape, and anchored to the bottom bar.

I claim:

1. A tilt rod cradle for Venetian blinds of the enclosed-head type in which the lift cords are reeved between the slats and supporting ladder tapes, said cradle comprising: a stamped metal body having a base portion adapted to be mounted on the bottom wall of an enclosed head bar; an upstanding leg at one end of the base portion adapted to receive a tilt rod, the leg having an open notch on one side thereof providing clearance for passage of the lift cords of the blind; a side portion of the base on the same side as the notch being folded upwardly and back upon itself in spaced parallel relation to form a pulley housing, the side walls of the pulley housing having registering inverted V-shaped slots extending across the transverse center line of the cradle, a cord pulley within the housing and a pulley axle received in the slots and mounting the pulley, the pulley axle being shiftable within the slots to position the pulley at either side of the transverse center line of the cradle.

2. A tilt rod cradle for Venetian blinds of the enclosed-head type in which the lift cords are reeved between the slats and supporting ladder tapes, said cradle comprising: a stamped metal body having a base portion adapted to be mounted on the bottom wall of an enclosed head bar; an upstanding leg at one end of the base portion adapted to receive a tilt rod, the leg having an open notch on one side thereof providing clearance for passage of the lift cords of the blind; a side portion of the base on the same side as the notch being folded upwardly and back upon itself in spaced parallel relation to form a pulley housing, the side walls of the pulley housing having registering slots extending across the transverse center line of the cradle, a cord pulley within the housing and a pulley axle received in the slots and mounting the pulley, the pulley axle being shiftable within the slots to position the pulley at either side of the transverse center line of the cradle.

3. In an enclosed head bar assembly for Venetian blinds, a sheet metal channel, a tilter mounted at one end of the channel, a cord lock mounted at the other end of the channel, and a pair of identical tilt rod cradles mounted on the channel between the tilter and cord lock, each of said cradles having a lift cord pulley mounted at one side of the base, one of the cradles being turned end-for-end to provide for reeving one lift cord through the bottom of the channel adjacent the front wall of the head bar and the other lift cord through the bottom of the channel adjacent the rear wall, the pulley of each cradle being mounted for shifting movement longitudinally of the head bar.

4. In an enclosed head bar assembly for Venetian blinds, a sheet metal channel, a tilter mounted at one end of the channel, and a cord lock mounted at the other end of the channel, and a pair of identical tilt rod cradles mounted on the channel between the tilter and cord lock, each of said cradles having a lift cord pulley mounted at one side of the base, one of the cradles being turned end-for-end to provide for reeving one lift cord through the bottom of the channel adjacent the front wall of the head bar and the other lift cord through the bottom of the channel adjacent the rear wall, the pulley of each cradle being mounted for shifting movement longitudinally of the head bar between opposite sides of the transverse center line of the cradle.

5. A tilt rod cradle for Venetian blinds of the enclosed-head type in which the lift cords are reeved between the slats and the supporting ladder tapes, said cradle comprising: a stamped metal body having a base portion adapted to be mounted on the bottom wall of an enclosed head bar; an upstanding leg at one end of the base portion adapted to receive a tilt rod, the leg having an open notch on one side thereof providing clearance for passage of the lift cords of the blind; a side portion of the base on the same side as the notch being formed to provide a pulley housing having two parallel vertical side walls, the side walls of the pulley having registering slots extending across the transverse center line of the cradle base portion, a cord pulley within the housing and a pulley axle received in the slots and mounting the pulley, the pulley axle being shiftable within the slots to position the pulley at either side of the transverse center line of the cradle.

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